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## GEOGRAPHICAL PUBLICATIONS

### (Reviews and Titles of Books, Papers, and Maps)

*For key to classification see "Explanatory Note" in Vol. II, pp. 77-81*

#### NORTH AMERICA

##### UNITED STATES

##### *South Atlantic States*

SPRUNT, JAMES. **Chronicles of the Cape Fear River, 1660-1916.** 2nd edit. 732 pp.; maps, diagrs., index. Edwards and Broughton Printing Co., Raleigh, 1916.

This volume, as the name suggests, is a collection of historical materials: newspaper articles, unpublished papers, extracts from histories, a few documents, and personal reminiscences—all selected with care and arranged chronologically. The sections written by Mr. Sprunt, particularly those on the blockade runners, are vivid, realistic, authoritative. It is an excellent contribution to the local history of the Wilmington region and may well be taken as a model for future monographs. It contains much also that is of general interest. All phases of the life of the Cape Fear region are depicted—colonial, ante-bellum, bellum, and post-bellum; commercial, industrial, social, educational, and religious. The geography of the region receives considerable attention.

New Englanders were the first to explore the lower Cape Fear River and engage in trade with the Indians. They were so well pleased with the prospects for colonization that in 1660 or 1661 they purchased a tract of land from the Indians near the mouth. In 1663 a party of British from Barbados made a detailed examination with a view to settlement. The first settlers, New Englanders, Barbadians, and English, arrived on the Cape Fear River in 1664 and established Charlestown at the mouth of Town Creek about 20 miles from the bar. Others came until the town numbered about 600. The settlers became dissatisfied, however, and abandoned the settlement in 1667, some going to Albemarle and Virginia, others to Barbados.

Brunswick (whose ruins may now be seen on the west shore of the estuary 15 miles below Wilmington) was the next settlement, established in 1725. Although Brunswick had considerable trade, it was short-lived, and Wilmington, at the junction of the two branches of the river and easily reached from the ocean, became in 1735 the chief port on the Cape Fear River. Lands were early taken up along the alluvial bottoms of the river, and by 1734 there were plantations all along for at least 100 miles from the mouth. Bluffs from 20 to 100 feet high were much sought after for the location of colonial homes.

Commerce has always been the chief interest at Wilmington, the town being the collecting and receiving point for a large area in the basin of the river. In the early days lumber, naval stores, indigo, rice, and tobacco were the chief exports. Negroes, rum, salt, and manufactured goods came direct from Barbados and the West Indies, Liverpool, Glasgow, or New England. Subsequently there were changes; but lumber, naval stores, and cotton long remained the dominant exports. Harbor improvements date from 1822, when embankments and jetties were begun and some dredging was done.

In the Civil War, Wilmington, because its harbor had two channels to the ocean—New Inlet (a great storm in September, 1761, forced an opening into the river at this point, formerly known as the "Haul Over") and the Main Channel—was the most important port of the Confederacy for blockade runners. A. E. PARKINS

##### *North-Central States*

LEVERETT, FRANK. **Surface geology and agricultural conditions of Michigan.**

With a chapter on climate by C. F. Schneider. 223 pp.; maps, diagrs., ill., index.

*Michigan Geol. and Biol. Survey Publ. 25: Geol. Ser. 21.* Lansing, 1917. 9 x 6.

This bulletin is a "combined revised manuscript of Publications 7 and 9" of the State Survey. An introductory chapter treating of the "Climatic Conditions of Michigan," not written by the author of the major part of the book, could be improved considerably both in content and clearness. The layman is left to ferret out much which otherwise might readily and authoritatively be conveyed to him by a more carefully organized presentation.

The remainder of the bulletin displays that excellence of scholarship which character-

izes the author's many contributions to geology and geography. The details of the region are probably better known to him than to any one else.

The volume is divided into two parts, treating the Northern and Southern Peninsulas respectively. In each section the physiography, the glacial features, and lake history are presented in detail. Brief agricultural notes constitute the fourth chapter in each part. One wishes that these notes were considerably elaborated, even though they are intended only as incidental. In Part I the last chapter is devoted to a brief discussion of water supply.

Maps, including two folded maps, scale 1:1,000,000, one for each peninsula, show the surface formations, and photographs add to the further illumination of the text. Definitions of terminology, whenever clearness is needed for the layman, insure to all a correct understanding of the contents.

EUGENE VAN CLEEF

PARKINS, A. E. **The historical geography of Detroit.** xix and 356 pp.; maps, diagrs., bibliogr., index. (University Series, III.) Michigan Historical Commission, Lansing, 1918. 9 x 6½.

"The plan of presentation of the material in the thesis follows that of the historian." Events in the history of Detroit have been recorded in chronological order and the geographic influences coupled with them. The volume is essentially a compilation of data.

After a few preliminary remarks in Chapter 1 on the "Geographic Setting of Detroit," the following five chapters discuss the founding of the city and its faring under the will of early explorers, subsequent British control, and later American government. Then follow a chapter which returns to the geographic setting in the form of local details, a chapter on the last century of growth, and four chapters on the relation of Detroit to the development of navigation, water transportation, land transportation, and manufactures respectively. Finally there is a chapter entitled "Factors in the Growth of Population and Development of Manufactures."

The point of view, it seems, could quite consistently have been shifted at the end from that of historian to geographer. The author would thereby have been able to present a clearer picture of the status of Detroit today as a consequence of her many years of interesting history.

The value of the work may be sought primarily in its numerous details gathered from a seemingly exhaustive research. Maps and a few diagrams and tables illuminate the text. It is regrettable that the maps lack parallels and meridians—the very foundation of all map construction. An extensive bibliography and detailed index complete the volume.

EUGENE VAN CLEEF

ALDEN, W. C. **The Quaternary geology of southeastern Wisconsin, with a chapter on the older rock formations.** Preface by T. C. Chamberlin. 356 pp.; maps, diagrs., ills., bibliogr., index. *U. S. Geol. Survey Professional Paper 106.* Washington, D. C., 1918.

BUCK, S. J. **Illinois in 1818.** xxvi and 362 pp.; maps, ills., bibliogr., index. (Illinois Centennial Publications, Introductory Volume.) Illinois Centennial Commission, Springfield, 1917. 9 x 6.

WOOD, E. O. **Historic Mackinac: The historical, picturesque, and legendary features of the Mackinac country.** Vol. 1: 697 pp.; maps, ills. Vol. 2: 773 pp.; diagrs., ills., bibliogr., index. The Macmillan Co., New York, 1918. \$12.50 for 2 vols. 9 x 6.

— [Topographic map of the United States.] 1:62,500. Sheets: (1) *Kings*, (2) *Kirkland, Ill.*; (3) *Belvidere*, (4) *Rockford, Ill.-Wis.*; (5) *Battle Creek*, (6) *Galesburg*, (7) *Leonidas*, (8) *Union City, Mich.*; (9) *Brainerd, Minn.*; (10) *Bainbridge*, (11) *Camp Sherman*, (12) *Garrison*, (13) *Higginsport, O.*; (14) *New Effington, S. D.-N. D.*; (15) *White Rock, S. D.-Minn.-N. D.*; (16) *Neshkoro, Wis.* U. S. Geol. Survey, Washington, D. C., 1917, 1918. [Leonidas, Mich., sheet surveyed in co-operation with the War Department and the state of Michigan]

## EUROPE

### GENERAL

SCHÜTTE, GUDMUND. **Ptolemy's maps of northern Europe: A reconstruction of the prototypes.** xvi, 150, and xxxi pp.; maps, diagrs., ills., bibliogr. Royal Danish Geogr. Soc., H. Hagerup, Copenhagen, 1917. 10½ x 7.

The student of historical geography finds himself repeatedly brought into the presence of that greatest of all geographers of antiquity, Claudius Ptolemy; his work still sur-

vives to influence research within the field he so ably represented. The editions of his geography, with and without his so-called maps, which have been issued since the revival of interest in his work in the early fifteenth century, are exceedingly numerous; these, with the volumes which have been issued with critical commentaries, would make up a library of large proportions. Dr. Schütte in this monograph makes one of the latest contributions of value, it being a comparative study involving a careful consideration of the sources. He has approached his subject not from an entirely new standpoint, but he emphasizes a phase of Ptolemy studies which is certain to prove more and yet more fruitful. He had given us certain preliminary results of his researches (G. Schütte: Ptolemy's Atlas, *Scottish Geogr. Mag.*, Vol. 30, 1914, pp. 57-77; 294-297), with much attention to philological problems in Ptolemaic nomenclature. In this his latest publication he limits himself largely to cartographical problems. A question much discussed has been that relating to the real author of the so-called Ptolemy maps. "What matters," Dr. Schütte well says, "is not in the first place the cartographer's name, whether Agathodaemon or a better known author or anonymous. The main point is the time at which he lived and the cartographic standard of his age."

The author has been moved to this particular critical study of the subject, as he gives us to understand, by the necessity for a revision of the traditional ideas about classical geography within the region of his own country, Denmark. His method as applied to this region is one applicable to any other region. He attaches much importance to the Ptolemy manuscripts, of which about forty are now known, and he pays here fitting tribute to that first of modern Ptolemy students, Professor Joseph Fischer, S. J., who has brought to light some of the most important of them. While among these manuscripts there are textual differences, the author thinks with Dinse they or the great majority of them are copies of classical originals representing the Ptolemaic Atlas in pure undisturbed condition. Such confusion as appears on these maps is that due to the classical cartographers themselves. He thinks these manuscripts as we now have them can not be the work of medieval copyists, who were incapable of undertaking the enormous task of constructing a detailed atlas merely on the basis of the Ptolemy text as has often been expressed.

Dr. Schütte directs attention to Ptolemy's predecessors in the first century A.D., particularly to Marinus, of whom he, Ptolemy, gives us the only information we possess and whose maps he says he had undertaken to correct, and to the makers of itinerary charts, such as the *Tabula Peutingeriana*. The attempt is made to get at a proper reading or interpretation of geographical names as they appear on the Ptolemy maps, to find a key, as it were, for interpretation. After directing attention to what he calls the various classes of Ptolemy's errors and arbitrary arrangements, he proceeds to a reconstruction of the assumable prototypes used by Ptolemy. There then follows logically a careful synopsis of the several assumed prototypes, such as a collective map describing Europe and its environs, a map or maps giving an orographic and hydrographic description, for example, of Germania, also a synopsis of itinerary or local maps.

The greater part of the monograph indeed consists of a careful consideration of the features of the several prototypes. Several pages are given over at the conclusion of the work to a list of editions of Ptolemy's Geography, to a list of the editions of Ptolemy's Atlas and of single Ptolemaic maps, and to researches dealing with Ptolemy or based upon his statements. More than thirty plates conclude the work, in which the author has undertaken to illustrate the supposed prototypes for the several European regions, primarily Germania, concluding with a rectified Ptolemy map of nationalities and a reconstructed map of nationalities in ancient Central Europe.

E. L. STEVENSON

GIUFFRIDA-RUGGERI, V. **Antropologia e archeologia in taluni riguardi della preistoria Europea.** 31 pp. *Archiv. per l'Antropol. e la Etnol.*, Vol. 46, 1916. Mariano Ricci, Florence, 1917.

METHORST, H. W. **Mouvement de la population (Europe).** xviii and 182 pp.; maps. *Annuaire Internatl. de Statistique* publié par l'Office Permanent de l'Institut International de Statistique. Van Stockum & Fils, The Hague, 1917. [With four graphic representations and four cartograms illustrating statistics prior to the war. Part I of the Demography, "Etat de la population (Europe)," appeared in 1916; See *Geogr. Rev.*, Vol. 4, p. 326].

MUIR, RAMSAY. **Europe and the non-European world.** *The New Europe*, Nos. 37, 38, 39, Vol. 3, 1917, pp. 321-328; 360-368; 403-408. London.

SUPAN, A. **Die europäischen Halbinsel.** *Atti X Congr. Internaz. di Geogr.*, Roma, 1913, pp. 1163-1165. Reale Società Geografica, Rome, 1915. [An admirable discussion of a philosophic-geographic nature.]

TAMARO, ATTILIO. *Il trattato di Londra e le rivendicazioni nazionali*. Maps. *Boll. Reale Soc. Geogr. Italiana*, Vol. 7, 1918, No. 5-6, pp. 434-454.

— *"The Literary Digest" liberty map of the western front of the great world war, showing the battle line of liberty as it stood on May 1st, 1918, also showing the lines of farthest advance of German and French offensives, with complete index.* 1:500,000 or 8 miles to 1 inch. Insets: Map of the complete war area, showing Russian, Italian, Balkan, Palestine, and Mesopotamian campaigns; also the zones of submarine blockade, [1 in.: 170 miles]; the coal and iron fields in the western war territory, [1 in.: 70 miles]. Funk & Wagnalls Co., New York, 1918. [A careful compilation showing much locational detail, including main roads and, along the battle front, woods. The battle front is shown as of May 1, 1918; likewise the maximum advance of the French and the Germans. On the inset of the whole Eurasian war theater no date is given for the battle lines shown. If this is intended to be May 1, 1918, also—as seems to be the case—account should have been taken of the withdrawal of Rumania. On both the main map and this inset distinction is made by tints between the Entente and Teutonic Allies and neutral countries, and the enemy territory occupied by both belligerents. A second helpful inset shows the coal and iron fields of the western war theater.]

#### RUSSIA

BROUNOW, P. *Schematische Karten der Wahrscheinlichkeit des Auftretens der trockenen Dekaden. (Landwirtschaftlich-Meteorologische Atlanten, Part I.)* 8 pp. of text and 21 maps. Meteorologisches Bureau des wissenschaftlichen Comités des Ministeriums für Landwirtschaft. Petrograd, 1913. [In Russian.]

This series of excellent maps illustrates an important tendency in modern meteorology. It shows the *probability* of the occurrence of ten consecutive days with practically no rainfall. For each decade of days from April to October a colored map based on 369 stations in European Russia south of the 60th parallel shows during what percentage of years the ten days in question may be expected to be dry.

In April periods of ten or more dry days are infrequent in western Russia and the Caucasus but increase in frequency toward the east and north. During the next month or two the tendency toward drought diminishes. Only around the Caspian Sea and from the Caspian to the Urals is it at all marked. By the middle of May the chances of a ten days' drought in most of Russia are less than 30 per cent, while by the middle of June conditions are still better. From that time onward the probability of drought once more increases in the south of Russia but not in the north nor in the Caucasus. By the middle of September the probability that a given ten days will be dry rises to over 70 per cent in most of southern Russia, except the Caucasus. The charts represent an effort to reach the same end which Mr. W. G. Reed has recently achieved by a still better method in his studies of weather probabilities in the *Review* (W. G. Reed and H. R. Tolley: *Weather as a Business Risk in Farming, Geogr. Rev.*, Vol. 2, 1916, pp. 48-53).

ELLSWORTH HUNTINGTON

BLANC, ÉDOUARD. *Le futur réseau des voies navigables de l'Empire russe.* *Ann. de Géogr.*, No. 140, Vol. 26, 1917, pp. 106-137.

KHVOROSMANSKI, P. *The Orenburg grain market.* 28 pp.; diagrs. Annex to Part 25 of *Reports* of the Orenburg Section, Imperial Russian Geographical Society. [In Russian.]

MARR, N. J. *Sur la migration des peuples japhétiques du sud au nord du Caucase.* *Bull. Acad. Imp. des Sci. [de Pétrograd]*, Ser. 6, 1916, No. 15, pp. 1379-1408. [In Russian.]

MOROSOFF (POPOFF), E. *Le lac du Petit Ritza.* Ills. *Recueil publié à l'occasion du vingt-cinquième anniversaire du Club Alpin de Crimée et du Caucase*, pp. 167-171. Odessa, 1915. [In Russian.]

PANKIEWICZ, IWAN. *Die Weissrussen.* Map, bibliogr. *Österreichische Monatsschr. für den Orient*, Vol. 41, 1915, No. 9-12, pp. 267-270. Vienna.

PASTERNAZKI, V. *De Krasnaja Poliana au passage de Pséachkho.* Ills. *Recueil publié à l'occasion du vingt-cinquième anniversaire du Club Alpin de Crimée et du Caucase*, pp. 84-89. Odessa, 1915. [In Russian.]

POSNANSKI, M. *Excursion aux lacs du Grand et du Petit Ritza (Les Robinsons du Caucase).* Ills. *Recueil publié à l'occasion du vingt-cinquième anniversaire du Club Alpin de Crimée et du Caucase*, pp. 144-166. Odessa, 1915. [In Russian.]

POSNANSKI, M. *Sur le mont Chakh-dag (dans le Daghestan du Sud)*. Ills. *Recueil publié à l'occasion du vingt-cinquième anniversaire du Club Alpin de Crimée et du Caucase*, pp. 105-123. Odessa, 1915. [In Russian.]

ROUSSY, ALBERT. *Les industries villageoises en Russie*. *Le Globe*, Vol. 56, 1916-17, pp. 14-23. Soc. de Géogr. de Genève. Geneva. [An abstract.]

— *Russian coal fields and their output*. Map, diagrs., ill. *Russia*, Vol. 2, 1917, No. 8, pp. 25-32. New York.

— *Russian farmers, "Dryness" charts for: Another example of the advanced scientific work of Brunoff and his associates in aid of progressive agriculture—Probable rainfall of Russia mapped for ten-day periods throughout the crop season*. Maps. *Russia*, Vol. 2, 1917, No. 4, pp. 7-11. New York. [See the review above, under "Brounow, P."]

SCHMIDT, AXEL. *Die Bedeutung der baltischen Provinzen für Russlands Stellung in der Weltwirtschaft*. *Weltwirtschaft*, Vol. 5, 1916, No. 11, pp. 238-240. Berlin.

SMIRNOFF, V. *Le compte rendu de l'activité du Club Alpin de Crimée et du Caucase durant les 25 ans de son existence (1890-1914)*. *Recueil publié à l'occasion du vingt-cinquième anniversaire du Club Alpin de Crimée et du Caucase*, pp. 9-46. Odessa, 1915. [In Russian.]

SMIRNOFF, V. *Sur le mont Zskhra-zskharo*. Ills. *Recueil publié à l'occasion du vingt-cinquième anniversaire du Club Alpin de Crimée et du Caucase*, pp. 77-83. Odessa, 1915. [In Russian.]

SOLBERG, O. *Die Westgrenze der Samojeden am Ende des 17. Jahrhunderts*. *Zeitschr. für Ethnologie*, Vol. 48, 1916, No. 1, pp. 8-10. Berlin.

TORNAUW, N. *Nouveau manuel de géographie de l'Empire russe comparé aux principales puissances*. *Atti X Congr. Internaz. di Geogr., Roma, 1913*, pp. 1132-1152. Reale Società Geografica, Rome, 1915.

— *Baltischen Provinzen, Die, Liv-, Est-, und Kurland. Mit vergleichenden statistischen Angaben über Grösse, Bevölkerung, und Wirtschaft*. 1:650,000. Herausgegeben im Auftrage des Baltischen Vertrauensrates vom Verlag von F. A. Brockhaus, Leipzig, Sept., 1917. [Valuable general map on a scale sufficiently large to allow of a good deal of detail. The linguistic boundary between Estonians and Letts is shown; it runs through the middle of Livonia but practically coincides with the boundaries of certain administrative subdivisions. The place names are exclusively in the German form.]

DYATCHISHIN, M. *Map of the Ukraine*. 1:2,580,000. Published by *Svoboda*, organ of the Ukrainian National Council in America, Jersey City, N. J., [1918]. [A physical map of the Ukraine (altitude tints: below 200, 200-500, 500-1500, over 1500 meters) showing (1) the ethnographic boundary of the Ukraine according to D. Belitchko, (2) the boundaries of the Russian governments, and (3) the western boundary of the Ukraine, as defined by the treaty of Feb. 9, 1918, extending from a point north of Pinsk westward to enclose Brest-Litovsk in a wide sweep and then southward to the Galician frontier to Rumania, the rest remaining undefined. The names are in Russian characters.]

#### SPAIN, PORTUGAL

B—, A. *España según algunos escritores mahometanos*. *Rev. de Geogr. Colon. y Mercantil*, Vol. 13, 1916, No. 11-12, pp. 470-473. Real Soc. Geogr., Madrid. [In the library of the Real Academia de la Historia, Madrid, there is a manuscript of translations from Mohammedan writings having reference to Spain.]

BARQUERO, P. M. *La llamada hora de verano y su aplicación á España*. 23 pp. Publ. del *Boletín de la Real Soc. Geogr.*, Madrid, 1917. ["Summer time" is now adopted in Britain, France, Germany, Austria-Hungary, Denmark, Switzerland, Scandinavia, Italy, and Portugal. Its introduction into Spain has been proposed, but the situation in this case is hardly comparable with that of any of the above countries save Portugal. Compared with regions of higher latitude the length of summer daylight and twilight is short. Moreover that part of the population that would secure the major benefit and would contribute the major saving in artificial lighting, the urban population, is proportionally far inferior to that of the great industrial countries of Europe.]

BELLET, DANIEL. *L'agriculture espagnole*. *Ann. de Géogr.*, No. 136, Vol. 25, 1916, pp. 306-310.

B[ELTRÁN Y] R[ÓZPIDE], R[ICARDO]. **La producción y la riqueza agraria de España.** *Rev. de Geogr. Colon. y Mercantil*, Vol. 15, 1918, No. 2, pp. 56-67. Real Soc. Geogr., Madrid. [Résumé from *Anuarios estadísticos de España*, 1915 and 1916.]

CERECEDA, J. D. **Evolución morfológica de la bahía de Santander.** 43 pp.; maps, diagrs. *Trab. Museo Nacl. de Cienc. Nat., Ser. Geol. No. 20.* Madrid, 1917.

CHOFFAT, P., AND E. FLEURY. **Bibliographie géologique du Portugal et de ses colonies (11<sup>e</sup> série, 1913; 12<sup>e</sup> série, 1914).** Reprinted from *Comunicações*, Vol. 10, 1914, pp. 234-263; Vol. 11, 1916, pp. 145-198. Service Géol. du Portugal, Lisbon.

FERREIRA, E. DE B. **A irrigação do Alemtejo.** Diagrs. *Bol. Soc. de Geogr. de Lisboa*, Vol. 34, 1916, No. 7-9, pp. 276-292.

MERINO, ABELARDO. **El regionalismo peninsular y la geografía histórica.** *Bol. Real Soc. Geogr.*, Vol. 58, 1916, No. 3, pp. 280-318. Madrid.

MERINO, ABELARDO. **La península española y el regionalismo: Conferencia leída en sesión de la Real Sociedad Geográfica celebrada el día 5 de Marzo de 1917.** *Bol. Real Soc. Geogr.*, Vol. 59, 1917, No. 2-3, pp. 352-384. Madrid.

NAVARRO, L. F. **Le glaciariisme quaternaire dans la Péninsule ibérique.** Diagrs. *Rev. Gén. des Sci.*, Vol. 28, 1917, No. 9, pp. 263-270.

OVERMAIER, HUGO, AND JUAN CARANDELL. **Datos para la climatología cuaternaria en España.** Diagrs. Reprint from *Bol. Real Soc. Española de Hist. Nat.*, Vol. 15, 1915, pp. 402-411. Madrid. [Abstracted in the *Geogr. Rev.*, Vol. 2, 1916, p. 308.]

OVERMAIER, HUGO, AND JUAN CARANDELL. **Los glaciares cuaternarios de la Sierra de Guadarrama.** 94 pp.; maps, diagrs., ills. *Trab. Museo Nacl. de Cienc. Nat., Ser. Geol. No. 19.* Madrid, 1917.

TORNER, F. M. **Llanuces: Monografía geográfica.** *Rev. de Geogr. Colon. y Mercantil*, Vol. 14, 1917, No. 7-8, pp. 250-276. Real Soc. Geogr., Madrid. [A village on the northern slopes of the Cantabrian Mountains.]

URABAYEN, L. J. **Oroz-Betelu: Monografía geográfica.** Ills., bibliogr. *Rev. de Geogr. Colon. y Mercantil*, Vol. 13, 1916, No. 8-9, pp. 289-354; No. 10, pp. 369-385; No. 11-12, pp. 409-469. Real Soc. Geogr., Madrid. [A Basque town situated in the first spurs of the Pyrenees, province of Navarre.]

VASCONCELLOS, ERNESTO DE. **Subsidios para a historia da cartografia portuguesa nos seculos XVI, XVII e XVIII.** *Bol. Soc. de Geogr. de Lisboa*, Vol. 34, 1916, No. 1-3, pp. 88-116.

VERGARA, G. M. **Divisiones tradicionales del territorio español.** *Bol. Real Soc. Geogr.*, Vol. 59, 1917, No. 1, pp. 110-128. Madrid.

VILLAR, E. H. DEL. **Archivo geográfico de la península ibérica.** 256 pp.; maps, diagrs., ills., bibliogr. Barcelona, 1916. 10 pesetas. 10 x 7½. [A compendium of the physical relations of the peninsula (more especially Spain) based on material from many sources. These are furnished in the bibliographies given at the ends of the several sections—cartography, geomorphology, hydrography and climate, phytogeography and agriculture, zoogeography and pastoral industry.]

## POLAR REGIONS

### ANTARCTIC

**Deutsche Südpolar-Expedition, 1901-1903, von Drygalski.** Vol. 3. *Meteorologie.*

Part 1: **Das Beobachtungsmaterial der internationalen meteorologischen Kooperation und seine Verwertung, nebst Erläuterungen zum meteorologischen Atlas.** By W. Meinardus and L. Mecking. **Die Luftdruckverhältnisse und ihre klimatischen Folgen in der atlantisch-pazifischen Zone südlich von 30° S. Br.** By L. Mecking. 129 pp.; diagrs. **Atlas: Meteorologie.** By W. Meinardus and L. Mecking. Part 1: **Mittlere Isobarenkarten der höheren südlichen Breiten von Oktober 1901 bis März 1904.** Parts 2, 3 and 4: **Tägliche synoptische Wetterkarten der höheren südlichen Breiten vom 1. Okt. 1901 bis 31. März 1904.** Georg Reimer, Berlin, 1911, 1915. 14 x 10½.

The remarkable increase in our knowledge of Antarctic meteorology within recent years may be roughly gauged by comparing the atlas of the German South Polar Expedition of 1901-1903, which weighs more than twenty-five pounds, with the scanty records

and correspondingly small and relatively unimportant publications on the same subject which were issued a decade or so ago. The earlier volumes dealing with the work of the German expedition under von Drygalski were reviewed in these pages (*Bull. Amer. Geogr. Soc.*, Vol. 46, 1914, pp. 221-222) by Henryk Arctowski, who included in his notice the first part of the atlas. We now have the second, third, and fourth parts of the Atlas, a stupendous and almost appalling mass of data, but worthy of the careful attention of all students of Antarctic conditions. Those who have for a good many years past been trying to teach their classes what was known about the Antarctic, with the "patchy" and unsatisfactory information which was all that was available ten or fifteen years ago, will have, in this elaborate series of maps, a new and inspiring mass of material to draw upon.

The meteorological atlas contains the isobaric charts and the daily synoptic weather maps based on the material collected through international co-operative efforts, including the contribution made by the German expedition. The work has been done by W. Meinardus and L. Mecking. The results cover the period October 1, 1901-March 31, 1904. The discussion was published in an earlier volume, which has already been reviewed by Arctowski (*vide supra*). The volumes here dealt with are altogether cartographic. Some idea of the extent of the material here available and of the enormous amount of labor involved in its preparation may be obtained from a realization of the fact that there are, in all, nearly 1,000 charts.

The second part of the Atlas (1915) contains the daily weather maps (306 in number) for October 1, 1901, to August 2, 1902; the third part covers August 3, 1902, to June 10, 1903 (312 maps); the fourth part completes the series, up to March 31, 1904 (295 maps). It is obviously quite impossible to discuss adequately the facts here set forth. Those who merely turn over the pages of these massive volumes must inevitably be impressed by the amount and value of the material here available for study. Those who make a closer examination will gain two distinct impressions. The first is that the advance in our knowledge of Antarctic meteorology has come by a series of the most extraordinary leaps and bounds. The second is that these charts, valuable as they are, and vastly important as they are, are still so strikingly incomplete—so dissatisfyingly incomplete, not through any fault of the compilers, but because there is still so very much that we want to know. The mere handling and cursory examination of these volumes is a real pleasure, and a real education in itself. Only those who have the time to study them closely can appreciate what a splendid contribution has here been made to meteorological science.

R. DEC. WARD

MOHN, H. **Meteorology.** (Roald Amundsen's Antarctic Expedition: Scientific Results.) 78 pp.; diagrs. *Kristiania Videnskapselskapets Skrifter: I. Mat.-Naturv. Klasse*, 1915, No. 5. Christiania.

It was eminently appropriate that Dr. Mohn, who prepared for publication the meteorological results of the Nansen Arctic expedition, should have been asked to undertake a similar task in connection with the meteorological observations of Roald Amundsen's Antarctic expedition. The present report is in two parts. The first deals with the observations at Framheim, already well known as the southernmost meteorological station of the world and as having the lowest mean annual temperature hitherto recorded anywhere in the world. The second part contains the observations made on the sledge journey to and from the South Pole.

Readers of the *Review* will probably remember that the meteorological observations made at Framheim were worked out, provisionally, by B. J. Birkeland, at present Director of the Meteorological Observatory of Bergen, and were published, with some of the results, in Amundsen's "The South Pole," Vol. 2, Appendix II, pp. 372-394. In the present report the complete revised observations (April, 1911-Jan., 1912) are printed in the usual "international" form. The yearly mean temperature at Framheim was 24°C. (—11.2°F.). No temperatures above zero C. were observed. The absolute minimum was —59°C. (—64.2°F.). The prevailing winds were from the east and seem to be chiefly incurring cyclonic winds from the sea. Framheim had no such gales as have been reported at other Antarctic stations, as notably by Sir Douglas Mawson for the coast of Wilkes Land, where the wind velocity averaged nearly 50 miles an hour for the year. That particular locality seems to possess the unenviable reputation of being the windiest region in the world: "the home of the blizzard." At Framheim the maximum wind velocity was 45 miles per hour. There was no rain, and snow fell only on every fifth day.

During the sledge journey to and from the Pole particularly valuable wind and pressure observations were made. On the Barrier, lat. 79°-83°, the pressure increases with latitude; it is constant to lat. 86°; it then decreases rather rapidly, and at last more slowly, to the Pole. "The Barrier has an anticyclonic distribution of pressure,



but the Plateau has a distinct, remarkably low pressure." The most frequent wind direction on the Barrier is south by east; on the Glacier, southeast by south; and on the Plateau, southeast. Strong southeast winds are most likely to be accompanied by snow. The results as to pressure and winds indicate that, in December, 1911, in the regions above 2,000 and up to 2,800 meters there were "cyclonic movements of the air, with centers in the northeast quadrant, higher temperature, and a great deal of precipitation." This is in remarkable agreement with the views of Meinardus as stated in his paper, "Aufgaben und Probleme der meteorologischen Forschung in der Antarktis," *Geogr. Zeitschr.*, Vol. 20, 1914, No. 1.

This much-belated notice of a highly interesting and important publication may serve, even at this time, to call attention to the scientific value of the meteorological work of the Amundsen expedition. The "popular" interest in the attainment of the South Pole has subsided. The value of the scientific results of the expedition will endure.

R. DEC. WARD

AULT, J. P. **Cruise of the "Carnegie" from South Georgia to Lyttelton, New Zealand, January 14 to April 1, 1916.** *Terrestr. Magnet. and Atmospher. Electr.*, Vol. 21, 1916, No. 2, pp. 103-106. [Reference to this and other parts of the *Carnegie's* cruise was made in the *Review*, Vol. 1, 1916, pp. 146 and 304.]

AULT, J. P. **Sea surface-temperature and meteorological observations made on the "Carnegie" during her sub-Antarctic cruise, December 6, 1915, to April 1, 1916.** *Terrestr. Magnet. and Atmospher. Electr.*, Vol. 22, 1917, No. 4, pp. 183-189.

BRUCE, W. S. **The Weddell Sea: An historical retrospect.** *Scottish Geogr. Mag.*, Vol. 33, 1917, No. 6, pp. 241-258.

DAVIS, W. G. **Observations made at Laurie Island, in the years 1905 to 1910. Part I. 720 pp.; diags. Part II: Climate of the South Orkney Islands: Discussion of the meteorological and magnetical observations made at Laurie Island. viii and 314 pp.; diags., index.** *Anal. Oficina Meteorol. Argentina*, Vol. 17. Buenos Aires, 1912 and 1913. [In Spanish and English.]

GAZERT, HANS. **Ärztliche Erfahrungen und Studien. (Deutsche Südpolar-Expedition, 1901-1903, von Drygalski.)** Map, diags. Vol. 7, No. 4, pp. 299-352. Berlin, 1914.

MANSON, MARSDEN. **The bearing of the facts revealed by Antarctic research upon the problems of the Ice Age.** *Science*, No. 1200, Vol. 46, 1917, Dec. 28, pp. 639-640.

MATHER, K. F. **Diminution of the Antarctic ice cap and the amelioration of climate.** *Science*, No. 1209, Vol. 47, 1918, March 1, pp. 218-219.

MOHN, H. **Roald Amundsens Antarktische Expedition: Wissenschaftliche Ergebnisse. Der Luftdruck zu Framheim und seine tägliche Periode.** *Kristiania Videnskapsselskapets Skrifter. I. Mat.-Naturv. Klasse*, 1916, No. 3, pp. 1-30. Christiania.

MOHN, H. **Roald Amundsens sydpolsfaerd og dens videnskabelige resultater.** Map, diags. *Naturen*, Vol. 40, 1916, No. 3, pp. 65-81; No. 4, pp. 97-112. Bergen.

MOSSMAN, R. C. **The drift of the "Endurance."** *Nature*, No. 2547, Vol. 101, 1918, August 22, pp. 487-488. [Abstract of report by Lieut. J. M. Wordie, "The Drift of the *Endurance*," *Geogr. Journ.*, Vol. 51, 1918, No. 4.]

SCHETELIG, J. **Short summary of the geological features of the known parts of South Victoria Land and associated areas of the Antarctic continent.** Map. *Kristiania Videnskapsselskapets Skrifter. I. Mat.-Naturv. Klasse*, 1915, No. 4, pp. 26-30. Christiania. [Part II of Report on Rock Specimens collected on Roald Amundsen's South Pole expedition.]

— **Shackleton Antarctic Expedition, The.** Maps. *Scottish Geogr. Mag.*, Vol. 33, 1917, No. 3, pp. 122-127.

— **Shackleton's great adventure in the ice-locked south.** Ills. *Collier's*, Vol. 58, 1917, Jan. 20, pp. 15-19. New York. [Illustrated with remarkable photographs by Frank Hurley, photographer of the expedition, showing the *Endurance* in the grip of the Weddell Sea ice, her final disappearance under the floe, and other incidents on the voyage. First publication in this country.]

WATKIN, E. I. **Antarctic voyages.** *Victorian Geogr. Journ.*, Vol. 33, 1917, Shackleton Souvenir Number, pp. 20-26. Melbourne.

— **Weddell Sea, The physical condition of the.** *Symons's Meteorol. Mag.*, No. 606, Vol. 51, 1916, July, p. 85. [Abstract of a paper on "Physical Conditions of the Weddell Sea" by Mr. R. C. Mossman at a meeting of the Royal Geographical Society, held on June 15.]

WORDIE, J. M. **The drift of the "Endurance."** Map, ills. *Geogr. Journ.*, Vol. 51, 1918, No. 4, pp. 216-237 (discussion, pp. 231-237).

## PHYSICAL GEOGRAPHY

### HYDROGRAPHY AND OCEANOGRAPHY

MATTHEWS, D. J., G. I. TAYLOR, AND L. R. CRAWSHAY. **Report on the work carried out by the S. S. "Scotia," 1913.** Prefatory report to the President of the Board of Trade, by H. L. Smith. 141 pp. Maps and diagrs. in separate volume. H. M. Stationery Office, London, 1914. 7s. 13 x 8½.

After the loss of the *Titanic*, the *Scotia* was sent to Newfoundland and Labrador waters in 1913 for fifteen weeks of ice-patrol work. In addition to temperature, salinity, and micro-plankton observations at various depths at selected stations, daily observations were made of ice; kind, position, direction, and rate of drift; of the set and velocity of current; and four-hourly observations of weather and sea-surface temperature were taken. Mr. Matthews's report, pp. 4-47, deals with the hydrography; that of Mr. Taylor, pp. 48-68, with the meteorology; and Mr. Crawshaw's, pp. 68-101, with the micro-plankton. There are three great currents in the area under consideration: the East Greenland Current and its continuation, the West Greenland Current; the Labrador Current; and the Gulf Stream. The East Greenland Current carries much sea ice and only a few bergs. On rounding Cape Farewell this mixes with warmer water, so that rarely does any of its ice get as far as Godthaab. Contrary to what might be taken as a matter of course, the East Greenland Current does not contribute ice to the Labrador Current. The West Greenland Current, picking up bergs, goes north to Melville Bay, where the bergs either get lost in Devils Thumb or go west and travel south in Middle Ice, which comes mostly from Smith Sound. West Ice is also from Smith Sound but receives additions from other sounds and from the shore. In Davis Strait these two great ice streams meet to form the Labrador Current. The Labrador Current flows southward carrying field ice and bergs, and splits into three parts on the north edge of the Newfoundland Banks. One branch follows the coast to Cape Race and then turns westward, a second flows along the eastern edge of the Banks, and the third passes eastward to the north of the Flemish Cap. The Gulf Stream after flowing across the southern end of the Labrador Current spreads out on the surface fanwise to the east.

According to Mecking (1907) strong west winds from November to January blow much of the West Ice and coast ice into the Labrador Current. On the other hand, as the bergs come from the west Greenland coast, strong east winds there in summer are followed by a year rich in icebergs in the Labrador Current. North of the Banks the field ice is at a maximum in late winter, while the iceberg maximum comes in early summer.

The *Scotia's* observations showed that "northwards of 50° N. the eastern edge of the Labrador Current was well marked on the surface by the isohaline of 34.00 and followed the edge of the deep water according to the general rule for the movements of oceanic currents. The Labrador Current itself had salinities varying between 33.50 and 32.50 at the surface and increasing downwards, with a temperature falling to a minimum, sometimes as low as -1.8° [C.], at depths between 20 or 30 fathoms and then increasing again. In some cases the cold low salinity water had beneath it a layer of Atlantic water with positive temperature and salinity of over 34.00."

"[In 1913] the velocities observed or calculated were as a rule very low. Off the coast of Labrador in relatively shallow water on the western edge of the Labrador Current the movements of the ice and the surface water were strongly affected even by light winds . . . . The fastest permanent drift noted, 0.55 mile per hour in a calm, was that of a berg on the outer edge of the Labrador Current off the south-eastern part of the Banks. On the southern part of the Banks themselves the movement was tidal and very regular, the direction swinging round the compass at a nearly uniform rate, with a resultant of about half a mile a day in an easterly direction at all depths at one station [but somewhat faster on the surface at another]. . . . Off Cape Race in water of about 100 fathoms in depth a surface set of about one-sixth of a knot in a northerly direction was measured instead of one of a knot to the south and west as is normally experienced here."

"Most of the bergs were sighted in water of less than 34 or 34.5 salinity. . . . The majority were naturally found in the colder water, 5° [C.] or less, but some were found in temperatures of 7° [C.] or 8° [C.] (45°-47° Fahr.), and even a temperature of 11° [C.] was observed within a few miles of a berg. . . . A sudden drop of temperature shows as a rule that the ship has entered the polar current, in which ice may be expected but not that there is any ice in the neighborhood, while a rise of temperature shows that the chances of ice being sighted are less on the whole but not that the ship is on safety if she is within the limits to which ice has been known to spread in the past. . . . The ice during 1913 was on the whole held up northwards of the 43rd parallel, and this appears to have been caused by a general drift of water from more southerly latitudes."

Mr. Taylor made a special study of the cooling and warming of air by the water over which it passes. The air temperature coincides generally within 1° or 2° C. with the water surface temperature, the greatest differences occurring with strong winds, and when there is a rapid rate of change in the surface water temperature. For seven out of the fourteen successful kite flights, the probable path of the air for several days previously was determined from weather maps and ship's observations. As was to be expected, when the air is moving from colder to warmer water an adiabatic ("positive") gradient is established to greater and greater heights as the time increases; and when the air moves from warmer to cooler water, a growing temperature inversion ("negative" gradient) occurs. When air after moving southwards turns to the north, the cooling at the bottom gradually changes the "positive" gradient into a "negative" one; while with a turn to the south after a long period of northward movement, an adiabatic gradient may gradually displace from below an extensive inversion of temperature. In all but one case of "negative" temperature gradient, the temperature of the sea was below that of the air; and for all observed "positive" gradients, the water was the warmer. The transmission of heat to and from the higher air layers is accomplished mainly by mixture. This "eddy conductivity" increases with the wind velocity, or with obstacles.

No fog occurred with the four observed "positive" gradients, but fog was present with nine out of the ten "negative" gradients. When relatively dry air is moving over colder and colder water, the temperature of the air may have to fall many degrees before fog occurs. On one occasion, the *Scotia* accompanied a mass of such cooling air until the fog formed. In most cases when the production of fog was observed, it was produced by the mixing of layers of air of different temperatures and humidities, in which the highest water-vapor content was necessarily in the warmer air. Even though the upper limit of the fog is sharp, the actual water content of the air may increase above the top of the fog. A thick fog is often associated with a rapid vertical increase of temperature because the greater the temperature contrast, the greater is the possible supersaturation. Although Mr. Taylor does not mention it, radiation is also a factor in fog formation in warm air over cold water.

As observed, the dispersion of fog results from the blowing of cold air over warm water or from an increase in wind velocity. An increase of wind velocity from 2 to 5 or 6 Beaufort raised the temperature 2°C. by mixture with the warmer air above. This rise of temperature was sufficient to disperse the fog, which later at the lower wind velocity was observed to be 230 meters deep. On another occasion a similar rise in wind and temperature failed to dissipate a fog. This one was found later to be 900 meters deep.

While air is cooled or warmed rapidly by the sea, the heating of the sea surface by the air is relatively small. In one case, when the air had a vertical temperature gradient of -1.9°C. per 100 meters, the heat exchange from air to sea probably was only 23 gm. cal. per sq. cm. per day.

Mr. Crawshaw confined his observations to the micro-plankton because the object was to supplement the hydrographic observations rather than to carry on a biological investigation. There are three classes of the micro-plankton: neritic, oceanic, and intermediate. The distribution of these depends, unlike that of ice, not on the currents but on the physical conditions of the water. The neritic and oceanic types in their distribution mark plainly the edges of the polar and oceanic waters even when there is considerable interdigitation. In the southeast border region intermediate plankton occur to such an extent that there is indicated a considerable mixture of the polar and oceanic waters.

The whole report is not only a valuable contribution to the knowledge of currents, ice, temperatures, and salinities of the northwestern Atlantic, but it also contains an important addition to the study of the relations of air and water temperature and of fog formation in this dangerous quarter of the ocean.

CHARLES F. BROOKS

BRUCE, W. S. **Recent advances in oceanography.** *Proc. Royal Inst. of Great Britain*, No. 109, Vol. 21, Part II, 1917, pp. 331-334.

GRAVELIUS, H. **Gundriss der gesamten Gewässerkunde.** Vol. 1: **Flusskunde**, viii and 179 pp.; maps, diagrs., index. G. L. Göschen, Berlin and Leipzig, 1914. M. 5. 9½ x 6½. [An excellent collection of laws of river development, presented clearly and with German thoroughness. It is based on studies made in the finely mapped European regions that make an excellent ground for such studies, mostly impossible in this country. The special student of river systems must not neglect it unless he have at hand complete files of German scientific periodicals.—MARK JEFFERSON.]

## HUMAN GEOGRAPHY

### ANTHROPOGEOGRAPHY

CHISHOLM, G. G. **Geography and the population question.** *Geogr. Teacher*, No. 47, Vol. 9, 1917, Part I, pp. 54-57.

FALCONER, J. D. **The geographical factor in ancient colonisation.** *Map. Proc. Royal Philos. Soc. of Glasgow*, Vol. 46, 1914-15, pp. 125-135.

FLEURE, H. J. **Régions humaines.** *Ann. de Géogr.*, No. 141, Vol. 26, 1917, pp. 161-174. [See the reference in the "Geographical Record" note above, p. 515.]

KELSEY, CARL. **The physical basis of society.** xvi and 406 pp.; diagrs., bibliogr., index. D. Appleton & Co., New York and London, 1916. 7½ x 5.

MARINELLI, OLINTO. **Dei tipi economici dei centri abitati a proposito di alcune città italiane ed americane.** *Riv. Geogr. Italiana*, Vol. 23, 1916, No. 10, pp. 413-431.

VIDAL DE LA BLACHE, PAUL. **Les grandes agglomérations humaines: (1) Afrique et Asie; (2) Europe—Remarques générales; (3) Régions méditerranéennes.** *Ann. de Géogr.*, No. 144, Vol. 26, 1917, pp. 401-422; No. 146, Vol. 27, 1918, pp. 92-101; No. 147, pp. 174-187.

### ECONOMIC GEOGRAPHY

#### *Distribution*

PROTHEROE, ERNEST. **The railways of the world.** xx and 752 pp.; diagrs., ills., index. George Routledge & Sons, Ltd., London, and E. P. Dutton & Co., New York, [1917]. \$2.50. 9 x 6.

Of this book 528 pages are devoted to the railways of the British Isles and 206 to the railways of the rest of the world. Only 27 pages are allotted to the railways of the United States, which has ten times the mileage of the British Isles, while Africa has 24 and Asia 37 pages. In spite of this, the book is a remarkable collection of information on transportation problems and normal railway workings, and its study will stimulate interest in railroads. The story of the growth of the locomotive from "Puffing Billy" to the Mallet oil-fired compounds is told in an absorbing narrative; second in romantic interest being the accounts of engineering skill in constructing the line, especially where great obstacles tend to block progress; and finally the technicalities of running trains. Furthermore, records of specific achievements and a wealth of pictures add to the usefulness of this work.

ROBERT M. BROWN

FIENNES, GERARD. **The freedom of the seas.** *Journ. Royal Soc. of Arts*, No. 3434, Vol. 66, 1918, September 13, pp. 663-669.

LEYLAND, JOHN. **The German "Freedom of the Sea."** *Journ. Royal Soc. of Arts*, No. 3436, Vol. 66, 1918, September 27, pp. 691-702 (discussion, pp. 699-702).

PIGGOTT, F. T. **The freedom of the sea in war.** *Journ. Royal Soc. of Arts*, No. 3435, Vol. 66, 1918, September 20, pp. 677-687.

[These three lectures trace the history of sea power in relation to neutral trade, discuss the varying significance attached to the popular phrase "freedom of the seas," and attempt to show the results that would follow an acceptance of the principle by the leading maritime nations.]